A Pediatric Guide to Oral Health

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Adapted from the American Academy of Pediatrics *A Pediatric Guide to Oral Health Flip Chart and Reference Guide,* 2011.

Acknowledgements

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For more information about the AAP Children's Oral Health Initiatives email oralhealth@aap.org or visit www.aap.org/oralhealth.

Primary Teeth

- Primary teeth are also called baby teeth.
- By age 3 years, there are usually 20 primary teeth.
- The spacing between children's baby teeth is important because it allows enough room for the bigger, permanent teeth.

Primary Teeth

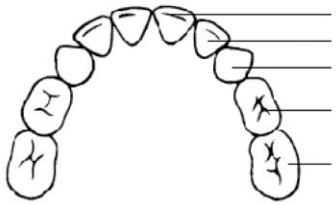
- Primary teeth have thinner enamel and appear whiter (translucent/ almost bluish) than permanent teeth.
- Disease may progress more quickly in primary teeth.
- The biting surfaces of posterior (back) teeth are grooved and pitted.
- Permanent teeth have wavy edges (mamelons) when they erupt, which smooth out with normal wear and tear.

Primary Teeth

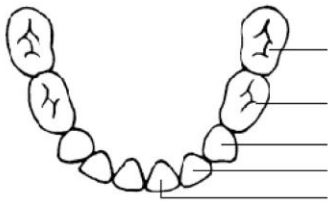
Teeth Eruption

- The first tooth eruption is usually between 4 and 15 months of age.
- Premature and low birth weight babies can have delayed primary tooth eruption and enamel defects, putting them at higher risk for decay.
- Eruption is usually symmetrical (lower teeth usually before upper) in the following pattern for primary teeth: central incisors, lateral incisors, first molars, canines, second molars. Exfoliation often follows a similar pattern.
- Teeth will sometimes erupt entirely out of the “normal” anticipated sequence; this should not be a concern.

PRIMARY TEETH



Upper Teeth	Erupt	Shed
Central incisor	8-12 mos.	6-7 yrs.
Lateral incisor	9-13 mos.	7-8 yrs.
Canine (cuspid)	16-22 mos.	10-12 yrs.
First molar	13-19 mos.	9-11 yrs.
Second molar	25-33 mos.	10-12 yrs.



Lower Teeth	Erupt	Shed
Second molar	23-31 mos.	10-12 yrs.
First molar	14-18 mos.	9-11 yrs.
Canine (cuspid)	17-23 mos.	9-12 yrs.
Lateral incisor	10-16 mos.	7-8 yrs.
Central incisor	6-10 mos.	6-7 yrs.

Primary Teeth

Tooth Shedding/Exfoliation and Permanent Teeth

- Tooth loss (also known as shedding or exfoliation) usually starts with the lower primary central incisors.
- Eruption is similar for the permanent teeth, beginning between 5 and 7 years and usually finishing by 13 to 14 years of age. The typical pattern is central incisors, lateral incisors, first molars, premolars, canines, second molars, and third molars (wisdom teeth), although not everyone develops or erupts third molars.
- It is common to see permanent teeth erupt behind the primary incisor teeth in the lower jaw. This typically resolves itself without intervention, although professional dental monitoring is indicated.
- The first permanent molars erupt around 6 years of age.

Early Childhood Caries

Early childhood caries (ECC) is a transmissible infectious process that affects children younger than 5 years and results in severe decay and tooth destruction. The previous terminology, *baby bottle tooth decay* and *nursing caries,* has been replaced with the term ECC because we now understand that the process of caries is independent of the route of feeding but is dependent on the frequency of refined carbohydrates in the diet. Early childhood caries is a particularly virulent form of caries that spreads rapidly within the mouth and typically results in severe dental disease.

Early Childhood Caries

Normal Healthy Primary Teeth

- Teeth should be white with smooth surfaces.
- Spacing between teeth is desirable.
- Gum tissue (gingival mucosa) should be smooth, pink, firm, and immobile.

Early Childhood Caries

Chalky White Spots

- First appear as dull white bands on the smooth surface of the tooth at the gum line, followed by yellow or brown discoloration.
- Are indicative of early decay or weakened enamel.
- May be reversible with exposure to topical fluoride and plaque removal.
- Indicate referral to a dental home as soon as possible.
- If left untreated, will lead to cavitation.
- Plaque and chalky white spots are sometimes mistaken for each other. The difference is plaque can be wiped off and white spots cannot.

Early Childhood Caries

Brown Spots

- Soft brown or black spots appear on the tooth, with progression slowly toward the chewing surface of the tooth.
- Put the affected tooth at risk for fracture.
- Signify advanced or severe decay.
- Dental referral is crucial!

Early Childhood Caries

Severe Decay

- Refers to the presence of multiple cavities in several teeth.
- May lead to early tooth loss and affects a child's ability to chew food and his or her self-esteem.
- Often requires general anesthesia in the operating room to remediate.
- Places children at risk for infection and cellulitis.

Early Childhood Caries

Children at High Risk for Caries

Children at High Risk for Early Tooth Decay
• Children on Medicaid
• Children whose mother or primary caregiver has cavities
• Children with siblings who have cavities
• Premature or low birth weight children
• Children with special health care needs
• Children who use a bottle after 15 months of age or have sweets and starchy snacks more than 3 times a day

Feeding

Breastfeeding

- Although breast milk alone is not cariogenic, it may become cariogenic when combined with other carbohydrate sources.
- Once teeth are present, it is important to implement oral hygiene following feedings; particularly for a child who is fed on demand and with high frequency and duration at night.

Feeding

Bottle-feeding

- Bottles should only be used with breast milk, formula, or water. Fruit juices, soft drinks, sweet teas, etc should not be put in bottles. At bedtime or nap time, bottles should only contain water.
- Infants should be held when bottle-fed. If a bottle is given with anything other than water at nap time or bedtime, parents should use a cloth to wipe the baby's mouth prior to laying the baby down.
- Bottles should not be propped with infants in cribs or car seats. Prolonged and frequent exposure to sugary liquids contributes to the caries process, and children who drink bottles while lying down may be more prone to ear infections.

Feeding

Sippy Cups

- Introduce a cup as soon as the infant can sit unsupported (around 6 months of age) and try to eliminate the bottle by 1 year of age.
- Sippy cups containing fruit juices, soft drinks, sweet teas, formula, or milk should not be given to the child at bedtime or nap time.
- If the sippy cup is offered between meals, it should contain only milk or water. If juice is offered, it should be restricted to mealtimes.
- Other sugar-containing drinks should be avoided.

Feeding

Food Guidance

- Provide the child with healthy alternatives such as fruits and vegetables cut into small pieces (to avoid choking) or whole grain snacks.
- Pre-tasting, pre-chewing, and sharing of utensils should be avoided because bacteria is transmitted through saliva.
- Avoid sticky foods like raisins, fruit leather, and hard candies.
- Discourage grazing.

Feeding

Maternal-Infant Transmission

- Carious bacteria can be transmitted from a mother to her child by sharing utensils, cleaning off pacifiers with the mouth, and pre-chewing food.
- Mothers with caries history should implement oral hygiene for themselves, see a dentist regularly, and take care to not share utensils or pre-chew food.

Non-nutritive Sucking

Sucking is a normal baby reflex. It helps babies feel secure and happy and helps them learn about their world. Babies may suck their thumbs, fingers, or hands, or a pacifier or other inanimate object such as a blanket or toy. Most children discontinue their nonnutritive sucking habit between the ages of 2 and 4 years.

Non-nutritive Sucking

Thumb and Finger Sucking

- Babies who suck their thumbs usually continue the habit longer than pacifier users.
- Prolonged thumb sucking may cause problems with proper growth of the mouth and the alignment of teeth. It also can cause changes in the roof of the mouth.
- The most common dental effect of nonnutritive sucking is anterior, upward movement of the maxillary central incisors and palatal bone, which may result in an anterior open bite. Other possible effects include maxillary constriction and posterior crossbite.
- Children should be encouraged to discontinue their nonnutritive sucking habits by 4 years of age.

Non-nutritive Sucking

Pacifier Use

- Pacifiers should never be dipped in sugary substances such as honey and sugar.
- Pacifier use during sleep is associated with a decreased incidence of sudden infant death syndrome.
- Pacifiers should never be used to replace or delay meals and should be offered only when the caregiver is certain the child is not hungry.
- Pacifiers should have ventilation holes and a shield wider than the child's mouth (at least 1¼ inches in diameter).
- Pacifiers should be one piece and made of a durable material, replaced when worn, and never tied by a string to the crib or around a child's neck or hand.
- Physiologic pacifiers are preferable to conventional pacifiers because they may have less dental effects.

Non-nutritive Sucking

Teething

- Teething is the emergence of the first primary (baby) teeth through a baby's gums.
- Teething begins as early as 3 months and continues until the child is approximately 3 years of age.
- Some babies may have tender and swollen gums when teething.
- Diarrhea, rashes, and a fever are not normal for a teething baby.

Non-nutritive Sucking

Tips for Parents

- Remove the drool on the baby's face to prevent rashes from developing.
- Give the baby something hard or cold to chew on, making sure it is big enough that it can't be swallowed or break into small pieces. Examples include refrigerated teething rings, pacifiers, spoons, clean wet washcloths, and frozen bagels or bananas.
- Gently rub the baby's gums with a clean finger.
- If the baby seems irritable, acetaminophen can be used.
- Topical teething gels sold over the counter (OTC) are sometimes used for teething. However, these gels can carry serious risks, including local reactions, seizures (with overdose), and methemoglobinemia. Parents should be instructed on proper dosing of OTC analgesic medications.
- Regularly disinfect teething rings and objects and wash hands to avoid gastrointestinal disturbances and infections.

Fluoride Modalities

Fluoride is a naturally occurring substance that is safe and effective in preventing tooth decay.

Fluoride Modalities

Fluoridated Water

- It can be found in communities that supplement tap water with fluoride.
- The Centers for Disease Control and Prevention (CDC) My Water's Fluoride Web site (http://apps.nccd.cdc.gov/MWF/Index.asp) allows consumers in currently participating states to learn the fluoridation status of their water system.
- Fluoride can be found in some bottled water. Look for fluoride content on the label.

Fluoride Modalities

Fluoride Supplements (Drops and Tablets)

- Supplements can be used as early as 6 months of age if a child at high risk for caries does not have access to an adequate amount of fluoride in the community water supply.
- For children at low caries risk, supplements are not recommended. Other sources of fluoride should be considered to prevent caries.
- When fluoride supplements are prescribed they should be taken daily to maximize benefit.
- If a family uses well water, be sure to order well water fluoride testing before prescribing supplements.
- Specific guidelines are used to determine the amount of fluoride needed based on a child's age.
- Drops come in 0.5 mg/mL.
- The topical effect of tablets is the preferred route. Many children can be transitioned to chew tablets as early as 15 to 18 months of age.

Fluoride Modalities

Fluoride Toothpaste

- It may be recommended by a pediatrician or dentist that fluoridated toothpaste be used for a child under the age of 2 if the child is at high risk for dental caries.
- Caution is advised when using fluoridated toothpaste for young children because they may swallow excessive amounts of toothpaste.
- A smear of fluoride-containing toothpaste (shown on opposite side in photo of a baby's toothbrush) has the recommended amount of fluoride (applied 2 times a day) for a 2-year-old child.
- Children 2 - 6 years of age should use only a pea-sized amount of fluoridated toothpaste.
- Check the fluoride content of toothpastes; almost all toothpastes manufactured in the United States provide topical fluoride, but not all natural toothpastes do.

Baby toothbrush with a smear of toothpaste

Child's toothbrush with a pea-sized amount of toothpaste

Fluoride Modalities

Fluoride Varnish

- Most fluoride varnishes are lacquers containing 5% sodium fluoride in a colophony/resin base.
- Fluoride varnish is painted on a child's teeth by a dentist or child health care professional if the child is at high risk for caries.
- The varnish protects teeth from decay and can arrest the progression of a chalky white spot lesion to a full-blown cavity.

Fluoride Modalities

Fluorosis

Fluorosis
• Fluorosis is a condition caused by an excessive intake of fluoride. 
• The effects of fluorosis are mainly aesthetic. Mild fluorosis results in lacy markings on the tooth's enamel surface; in moderate fluorosis, a white opacity is easy to see over 50% of the tooth; and severe fluorosis results in pitted, brittle enamel.
• Threat of fluorosis disappears after mineralization of all permanent teeth (usually 8 years of age).

Toothbrushing

Fluoride Toothbrushing Recommendations

Age	Toothbrushing Recommendations
<1 y	Clean teeth with soft toothbrush.
1–2 y	Parent should perform brushing.
2–6 y	Pea-sized amount of fluoride-containing toothpaste 2 times per day; parent performs or supervises.
>6 y	Brush with fluoridated toothpaste 2 times per day.

Toothbrushing

Advice for Parents

- Clean or brush a young child's teeth twice daily.
- Begin wiping the gums of even a very small infant with a soft washcloth or soft toothbrush, even prior to tooth eruption, to establish a daily oral hygiene routine.
- Toothbrushes for infants and toddlers should be soft with a small head and a large handle.
- Toothbrushing should be supervised until the child can reliably rinse and spit out excess toothpaste (usually 6 years of age). Younger children do not have the hand coordination necessary for independent toothbrushing prior to that age.
- Electric toothbrushes are especially useful in situations of limited movement. They do the work for you, they position well, and the small head can help limit the amount of toothpaste to what is appropriate for children.
- All accessible surfaces of each tooth need to be brushed.
- Remind parents to not allow their child to swallow fluoridated toothpaste.

Flossing

Flossing is an essential part of the tooth-cleaning process. It removes food particles and plaque between teeth that brushing misses.

Flossing

Advice to Parents

- Flossing should begin when 2 teeth touch, typically between 2 and 2½ years of age. Some children may only need a few back teeth flossed and others may need flossing between all their tight teeth, depending on dental spacing.
- Children usually need assistance with flossing until they are 8 to 10 years of age.
- Flossing tools, such as pre-threaded flossers or floss holders, may be helpful for children who are just learning how to floss.
- Some children may find it easier to use a loop of floss, which is created by taking a piece of floss about 10 inches long and tying the ends together into a circle. Parents (and older children) can hold the floss tightly between the thumbs and forefingers to floss.

Fluoride Varnish

Facts

- Concentrated topical fluoride.
- Five-percent sodium fluoride in a resin base.
- Effective in preventing early childhood caries and reducing caries progression.
- Fluoride application by physicians may be a billable procedure. Check with the local Medicaid program for more information.

Fluoride Varnish

Applying Fluoride Varnish - Instructions for Provider

- Have everything ready.
- Open varnish packet and mix it well.
- Wipe child's teeth dry with a clean gauze.
- Paint child's teeth with varnish using disposable applicator.
- Instruct parents.
  - *Do not brush the child's teeth until the next day.*
  - *The child's teeth may be slightly yellow until they are brushed.*
  - *The child can eat and drink right away but should avoid hot liquids.*

Fluoride Varnish

Applying Fluoride Varnish - Instructions for Parent

– *Do not brush the child's teeth until the next day.*

– *The child's teeth may be slightly yellow until they are brushed.*

– *The child can eat and drink right away but should avoid hot liquids.*

– *Fluoride varnish may be applied to your child's teeth at a dentist's or pediatrician's office or by another type of health care professional.*

Fluoride Varnish

Frequency of Application

- For moderate caries risk, apply every 6 months.
- For high caries risk, children may benefit from increased application frequency of every 3 to 4 months.
- Payment codes may only be allowed for 2 to 3 applications per year. (Check with the local Medicaid program for information about payment.)

Fluoride Varnish

Children Aged 0 to 3 Years Who Will Benefit From Fluoride Varnish

- All children eligible for Medicaid
- Siblings with cavities before 6 years of age
- Premature children
- Children with special health care needs
- Children who use a bottle after 15 months or have sweet or starchy snacks more than 3 times a day
- Children without a dental home

Key Points

Early childhood caries is the number one chronic infectious disease of early childhood.

Good oral health starts early!

Children should receive preventive oral health care from a dentist or their pediatrician if no dentist is available.

Children should be exposed to adequate levels of fluoride from water, toothpaste, and other sources.

Children at high risk for cavities should receive fluoride varnish from their dentist or pediatrician if dentist is not available.

No bottles to bed, unless they only contain water!

Feed children healthy foods that are low are sugar. Limit snacking and drinking anything but water between meals.

For more information

For more information about children's oral health contact the American Academy of Pediatrics at oralhealth@aap.org or www.aap.org/oralhealth.

Thank you!